

PYP planner

Planning the inquiry

Class/grade: **First**  Age group: **6-7**

School:  **Westwood Elementary** School code: **7444**

Title:  **Balancing Act**

Teacher(s):  **Blaty, Nuhfer, Waldren**

Date: **September/October**

Proposed duration: number of hours: **120 hrs.** over number of weeks: **6**

**1. What is our purpose?**

**To inquire into the following:**

* **transdisciplinary theme**

**How the World Works**

* **central idea**

**Force, balance, and motion affect things around us.**

**Summative assessment task(s):**

What are the possible ways of assessing students’ understanding of the central idea? What evidence, including student-initiated actions, will we look for?

Summative assessments are evidence of attainment or indicators of success. A summative assessment is an opportunity for students to creatively demonstrate their conceptual understanding of the central idea. Students choose the format of their summative assessment which is neither dictated nor limited by the teacher.

* Posters
* Make a book
* Skit using force, balance, and motion with explanation on how it affects them.
* Self-selected (student choice)

**Actions/Evidence:**

* Students will use unit vocabulary appropriately in context.
* Citizen of the day brings an object and explains how it uses force, balance, or motion.
* Students will demonstrate knowledge of force, balance, and motion using common objects, playground equipment, and their bodies.
* Students will actively participate and show a degree of success in a variety of FOSS Science Kit activities

**2. What do we want to learn?**

What are the key concepts (form, function, causation, change, connection, perspective, responsibility, reflection) to be emphasized within this inquiry?

**Causation, function, connection**

What lines of inquiry will define the scope of the inquiry into the central idea?

* **The effects of force on motion**
* **Factors that influence balance**
* **The characteristics of motion**

What teacher questions/provocations will drive these inquiries?

1. **What is the impact of force, balance, and motion? (Causation)**
2. **How do things move or balance? (Function)**
3. **What are the relationships between force, balance, and motion? (Connection)**

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**4. How best might we learn?**

**What are the learning experiences suggested by the teacher and/or students to encourage the students to engage with the inquiries and address the driving questions?**

**Front-loading:**

* Introduce unit terms, tops, crayfish, balls, and scales in science center for the students to explore. Introduce key concepts/vocabulary need to understand the central idea by rotating to different stations.

**Learning Experiences/Engagements:**

* Trick Crayfish Activity - Foss Kit (Force, Balance and Motion)
* Balancing Pencil - Foss Kit (Force, Balance and Motion)
* Whirly Gigs/Zoomer - Foss Kit (Force, Balance and Motion)
* Twirly Birds - Foss Kit (Force, Balance and Motion)
* Marble Maze - Foss Kit (Force, Balance and Motion)
* Box Maze
* Mobile - Foss Kit (Force, Balance and Motion)
* Investigation of balances and/or weighted numbers

**What opportunities will occur for transdisciplinary skills development and for the development of the attributes of the learner profile?**

* Students will develop interpersonal skills as they work in groups which will allow them to become better communicators.
* Students will develop their thinking skills as they explore the concepts of force, balance and motion in their world which will allow them to be more knowledgeable and a thinker.
* Students will develop their self management skills as they utilize their time wisely which will help them become a quality producer.
* Students will develop their communication and social skills when they present their summative assessments.

Planning the inquiry

**3. How might we know what we have learned?**

*This column should be used in conjunction with “How best might we learn?”*

**What are the possible ways of assessing students’ prior knowledge and skills? What evidence will we look for?**

* KWL
* Students will be asked to tell, draw, or demonstrate the effect that force, balance and motion have on things around them.
* Teacher Observation
* Class Discussion

**What are the possible ways of assessing student learning in the context of the lines of inquiry? What evidence will we look for?**

* Student identifies what makes an object balance by demonstrating through the Crayfish Activity, Pencil Activity, and the mobile activity.
* Student identifies the relationship between force, balance and motion by demonstrating how all are needed in the marble maze activity.
* Student demonstrates an understanding of required vocabulary by using the terminology appropriately through the rest of the school year.

**5. What resources need to be gathered?**

**What people, places, audio-visual materials, related literature, music, art, computer software, etc, will be available?**

All specialists have integrated learning engagements for this planner which focus on the concepts in the central idea. Foss Kits and unit tubs will need to be pulled for materials and literature.

**How will the classroom environment, local environment, and/or the community be used to facilitate the inquiry?**

Playground - The students will demonstrate their understanding of force, balance and motion by applying it to the equipment on the playground.

Classroom - Students will see terminology in the classroom and completed investigations will be placed on the bulletin board outside.

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Reflecting on the inquiry

**6. To what extent did we achieve our purpose?**

**Assess the outcome of the inquiry by providing evidence of students’ understanding of the central idea. The reflections of all teachers involved in the planning and teaching of the inquiry should be included.**

We changed the central idea’s wording to say force, balance, and motion affects “things” rather than “everything” around us in order to be able to better assess the students understanding. The Foss kits help us teach the lines and provide us with formative assessments. Students showed a higher level of interest in this unit and we saw them make many connections. For example, in music students practiced balancing their sound and volume levels and explored force, balance, and motion by playing the xylophones and experimenting with different amounts of force and motion to create a sound. This allowed students to make connections with the concepts to music. Students used a lot of planner vocabulary throughout the school day. We enjoyed having parent night during this planner because the students’ are so excited to teach their parents what they’ve learned. The summative assessments showed that the unit was a success.

**How you could improve on the assessment task(s) so that you would have a more accurate picture of each student’s understanding of the central idea.**

We could allow the students to take a hands-on approach of showing instead of writing/drawing how force, balance and motion affect things around them. This would be a positive for the ELL students who have a hard time expressing themselves on paper. We discussed that this can be accomplished through a video demonstration where the students show how force, balance and motion affect things around us.

**What was the evidence that connections were made between the central idea and the transdisciplinary theme?**

Students began to develop an understanding that force, balance, and motion are all a part of scientific principles and laws in our world. Students questioned about balance and movement and come to the conclusion that they had a physical affect on each other. They talked about the effect gravity has on the world around them. These discoveries are the first steps towards understanding more complex laws and principles.

**7. To what extent did we include the elements of the PYP?**

What were the learning experiences that enabled students to:

In each case, explain your selection

**develop an understanding of the concepts identified in “What do we want to learn?”**

* Affects of force on motion - Tops, Marble Maze, Twirly Birds, Whirly Gigs: This was a beneficial activity because the students used hands-on experiences to demonstrate their understanding of the terms.
* Factors that influence balance - Mobiles, Stable Positions Activity: The Mobiles and Stable Positions Activity both introduced the concepts of counterweights and how counterweights can help balance out objects.
* Impact of force, balance and motion - Marble Maze: the Marble Maze activity allowed the students to see that force, balance and motion are all needed for the marble to run all the way through the track.
* How do things move or balance - Twirly Birds, Whirly Gigs, Mobiles, Tricky Crayfish: The Twirly Birds and Whirly Gigs allowed the students to explore movement. The Mobiles and Tricky Crayfish allowed the students to explore the concept of balance.
* What is the relationship between force, balance and motion - Marble Maze, Tops: The Marble Maze and Tops showed the students that force, balance and motion are needed to complete these activities successfully. The marble and top need force to get started, they are in motion, and the top balances on its point while the marble balances on the track.

**demonstrate the learning and application of particular transdisciplinary skills?**

* **Interpersonal Skills**: The students will use cooperation to build stable towers. They must be good communicators with their team to utilize all their players' strengths appropriately.
* **Thinking Skills**: The students will balance a real pencil on its tip by using counterweights. They must be a thinker because they need to adjust their counterweights as needed and try different strategies to make the pencil balance.
* **Self Management**: The students must manage their time and make sure that they are being a quality producer.

**develop particular attributes of the learner profile and/or attitudes?**

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Reflecting on the inquiry

**9. Teacher notes**

* We order weighted numbers and scales to help incorporate math inquiry more into this process.
* Take pictures of students using force, balance and motion during the class day. Let these be available during summative assessments.
* Continue to add more to the resource page.
* Find more ways to tie this planner internationally.
* Use Acrobats of China movie.
* Use Discoveryeducation.com

**8. What student-initiated inquiries arose from the learning?**

**Record a range of student-initiated inquiries and student questions and highlight any that were incorporated into the teaching and learning.**

* How do construction workers knock huge buildings over?
* How do people move boats through the water without tipping over?
* How does a roller coaster go upside down without falling off the track?
* How do people walk across a rope?
* What does balance have to do with motion?
* How hard does a baseball player have to hit a ball to get a home run?
* How far can you throw a ball?

At this point teachers should go back to box 2 “What do we want to learn?” and highlight the teacher questions/provocations that were most effective in driving the inquiries.

**What student-initiated actions arose from the learning?**

**Record student-initiated actions taken by individuals or groups showing their ability to reflect, to choose and to act.**

* The students took crayons, pencils, and books and would place them on their head and fingers and say, "I am balancing!"
* Students brought in Sports Illustrated books to show pictures of force, balance, and motion.
* The students would hang from the monkey bars and say that they were balancing their bodies.
* Some students tried to balance a chair on his/her hand because he/she watched the movie The Acrobats of China.
* Students would say that they use force to kick the soccer ball on the playground.
* In the unit How We Organize Ourselves, the students said that cowboys need balance to stay on a bull.
* Student brought in a stopwatch because she wanted to see how long we could balance on one foot.

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